MODULE EIGHT- CREATING AN IPPD COMPUTER INFRASTRUCTURE

LESSON ASSIGNMENT

IPPD :

Objectives:

· To

Desired Learning Outcomes: The student should be able to:

· Understand the

Assignments/References:

Chapter 8

WORKBOOK FOR MODULE EIGHT

CREATING AN IPPD COMPUTER INFRASTRUCTURE

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Preparations:

This module includes an article at the end of the chapter. Please read this article, and answer the discussion question below before you view the videotape. Then, after completing the tape, answer the questions in Stage Two. You might want to revisit the first discussion question after you have finished, to see how your answer may have changed.

STAGE ONE (Discussion)

Q1. What are the components that you feel are necessary for a computing environment?

STAGE TWO (End of Video)

Q2. What elements of the computer infrastructure do we want to be transparent? Why

Q3. What process has to be completed before a real problem can be represented in a computer?

Q4. A design process can be tailored to produce a design based upon a specific objective. What are some examples of an objective for optimization during the design process?

Q5. In the lower level of the design pallet, an aircraft is sized using programs from different disciplines. What is this process commonly called?

Q6. What is the benefit of having a mixture of relational and object oriented databases?

Q7. What are the benefits of schema evolution in an object oriented structure?

Q8. What is an instance of an object?

Q9. What does a context field contain?

Q10. What does an accumulator provide?

Q11. What type of tools are generally platform independent?

Q12. What are the benefits of creating a modular structure of a design process.

Q13. What are the three parts of an agent?

Q14. What are the two type of distribution for communications?

Q15. Why should you not plan your computer system around recent advances from the internet?

Answers For Module Eight

CREATING AN IPPD COMPUTING INFRASTRUCTURE

Q2. What elements of the computer infrastructure do we want to be transparent? Why

A2. We want the Ontology, the Communications structure, and the Physical Layer to be transparent because while they provide a function, they do add to our understanding of the design problem or solution.

Q3. What process has to be completed before a real problem can be represented in a computer?

A3. The problem has to be discretized, or broken down into small steps that can be modeled in a computer. Real life is a continuous process, but most computer programs can only model a portion of a continuous process, so it must be discretized.

Q4. A design process can be tailored to produce a design based upon a specific objective. What are some examples of an objective for optimization during the design process?

A4. The design process can be optimized for cost, for size, for a mission, or for any number of objectives. These objectives depend upon the system mission and uses. However, cost should always be a part of the objective.

Q5. In the lower level of the design pallet, an aircraft is sized using programs from different disciplines. What is this process commonly called?

A5. Multi Disciplinary Optimization. MDO is when more that one discipline, for instance, structures, aerodynamics, controls, and signature, are used together to optimize the system as a whole, instead of optimizing the system for just one of those disciplines

Q6. What is the benefit of having a mixture of relational and object oriented databases?

A6. The benefit is being able to use legacy data without the expense of switching relational data to the faster object oriented. In this way, your newer data can be access faster, but your older data can be accessed by the same database.

Q7. What are the benefits of schema evolution in an object oriented structure?

A7. Since schema evolution can have different representations of the same object, it allows different organizations to have their own representations of an object and still pass information through a central database. This facilitates the distribution of tasks through an existing organization or among the teams for analysis.

Q8. What is an instance of an object?

A8. An instance is a particular set of data that describes a solution or design. There can be many sets of instances for one object structure. Instances can provide a context for a particular design, by allowing it to be compared to other solutions or design sets. The important aspect of context is not to replace tone instance with another, but to allow all instances to be recorded.

Q9. What does a context field contain?

A9. A context field contains a tag that shows who created the piece of information, so that a level of accountability is maintained. Without accountability, the database can be quickly contaminated with incorrect or out-of-data information.

Q10. What does an Accumulator provide?

A10. An accumulator is a history of the design process, providing another level of context for the manager of the program. It shows the progressive levels or values for the parameters that are held in Instances.

Q11. What type of tools are generally platform independent?

A11. Management tools are usually platform independent, running on top of any operating systems, but analysis tools are usually written for a particular platform, because they use properties of that platform in the higher level computer tasks.

Q12. What are the benefits of creating a modular structure of a design process.

A12. By having a modular structure in your design process, tools of increasing fidelity can be substituted in the process without disturbing the entire process. In addition, when analysis tasks take more effort, a team can be used instead of just one person. Substituting one process for another equal but better requires modularity.

Q13. What are the three parts of an agent?

A13. An agent requires a program, a model of the physical process, and a wrap. The wrap is what allows an existing program to be used within the central database without changing the actual program. Changing the program to work entirely within a specific situation is very expensive, while a wrap is much less expensive.

Q14. What are the two type of distribution for communications?

A14. The two types of distribution are Message Passing and Object Services. Message Passing is stream based and therefore a simple and singular method of information transfer. Object Services passes objects, complete with descriptions and embedded models.

Q15. Why should you not plan your computer system around recent advances from the internet?

A15. Because of the rapidly changing trend from the internet, it can be very expensive to plan to use these systems. For instance, standards are not set very quickly, and when they are, newer standards can make your plan obsolete. Instead, plan to use your existing architecture, and only implement the trends that make sense in a module setting.